RUSHING WORK ON THE ILLINOIS.

The Big Battleship May be Launched June 10th.

MIGHTIEST FORTRESS AFLOAT.

This Will Be True of the Great Ship When She Rides the Waves—Description of Her Offensive and Defensive Armament

NEWPORT NEWS, VA., May 25.—Work on the frame of the battle ship Illinois is being pushed so rapidly that it is believed she will be ready for launching by the 10th of next month.

When completed the Illinois will be one of the mightiest fortresses afloat. According to the terms of the contract, she would not be ready for transfer to the government for about a year, but it is considered probable that an arrangement will be made to have her in condition for fighting an enemy several months earlier than that.

The dimensions of the Illinois are as follows: Length on load water line, 368 feet; beam, extreme, 72 feet 5 inches; draft on normal displacement, 23 feet 6 inches; normal displacement, 11,525 tons; maximum displacement, all ammunition and stores on board, 12,325 tons; maximum indicated horse power (estimated), 10,000 maximum speed required by contract, 16 knots; normal coal supply, 400 tons; maximum coal supply, bunkers full, 1,210 tons; complement, officers, seamen and marines, 511.

The strictly novel characteristic of the Illinois and her two sister ships will be their exceedingly moderate draft of water, but twenty-five feet when full laden, by which they may enter practically any harbor of importance along our coast lines, something denied to most of the armored cruisers of all nations. The offensive advantages which this single feature will possess cannot, it is believed, be overvalued.

The power to meet any enemy will be centered effectively in the twenty-two guns forming the main and auxiliary batteries, and these will consist of: Main battery, four thirteen-inch breech-loading rifles and four eight-inch breech-loading rifles; auxiliary battery, fourteen five-inch rapid-fire rifles.

For the purpose of resisting torpedo boat attack and enfilading the open decks or unprotected gun stations of an enemy, twenty six-pounders, six one-pounders and four Gatling guns will keep up a destructive fire, and woe to the venturesome small craft that exposes itself to the fury of the fighter. The thirteen-inch and eight-inch guns will be found in two two-story gun turrets. The eight-inch guns will be in the upper half, which is fixed rigidly to the lower half. The whole structure will have a total swing of 270 degrees, and all four guns will be pointed in the same general direction and swung from side to side by the one great turning gear engaging the lower half.

SHELTERED BEHIND WALLS.

The eight-inch guns will be sheltered behind walls generally nine inches thick, but augmented to eleven inches at the front. The thirteen-inch guns will be covered by fifteen inches of hardened steel sides, except at the front, where there is an added thickness of two inches. To pierce the walls of the lower turret a shot would have to strike them from a distance of 1,500 yards with all the penetration energy equal to carrying that shot fully thirteen miles.

The auxiliary battery of fourteen five-inch rapid-fire guns will be mounted in the superstructure, on the main deck. This superstructure will be composed of hardened steel, six inches thick, and it is asserted that no explosive six-inch shell could ever get through that bulwark. Each gun station will be separated from the adjoining gun by a two-inch wall of steel, in order that the effect of penetrating shot and bursting shell may be localized. Each of these guns will have a service rate of quite six aimed shots a minute. The six-pounders will be mounted in part on the berth deck, forward and aft. The rest of them will be placed in the superstructure above the five-inch guns where they will have a very desirable range of fire. The one-pounders and the Gatlings will be placed on the bridges and up in the military tops. To feed all these guns the Illinois will carry 500 tons of ammunition.

ARMOR AT THE WATER LINE.

The water-line region of the sides will be protected from attack by a broad band of 16½-inch armor running along the sides amidships, for a distance of 174 feet and tapering thence to 4 inches at the stern. This belt is 7 1-2 feet wide and under normal conditions only 5½ will be above the water line. At the extremities of the thickest part athwartship bulkheads will turn inward and end against the barbettes or heavy tubes of 15-inch steel, which will rise from the protective deck and will shield the ammunition hoists and the turning gears of the turrets. The forward bulkhead will be 10-inches thick and the after one 12. A protective deck of hardened steel 2 3-4 inches thick will rest on the floor was formed by the athwartship bulkheads and the inner edge of the inland side armor. Under the protecting shelter of this heavy roof and many feet of coal will lie the engines, the boilers, the magazines and the shell rooms—the "vitals," in fact, of the ship.

A broad band of cellulose will extend from stem to stern and back of the 5-inch armor, which will protect the sides amidships from the heavy armor belt up to the main deck, and automatically plug all shot holes admitting water. The protective deck covering the vitals will be run slantingly to the bow and the stern, and forward will form the backbone of the murderous ram which will lie just below the water.

Two sets of triple-expansion engines, each in its own water-tight compartment, will actuate the twin screws, while five great boilers, each sustaining a pressure of 180 pounds of steam, will supply the energy needful to drive those engines and turn the screws 120 times a minute.

The turrets will be turned and controlled by electricity, and the same power will bring the ammunition from its store rooms to the breeches of all the large guns—the 6-pounders and less excepted. Each mast will be fitted with its own signal outfit, and the lower half of each mast will form a vast wind pipe, down which fresh air will be drawn to the depths of the craft.

THE AUXILIARY ENGINES.

Eighty-odd auxiliary engines will reduce the tax upon the muscular energies of the crew and add to the efficiency of the ship by handling and lowering the boats, raising the anchors, loading the coal, discharging the ashes, bringing the shot, shell and powder from the depths below to the gun stations, and turning the turrets, and, except for the guidance of these mechanisms named, manual labor is practically needless.

Compared with any of our wooden ships of the line, the contrast is instructive. Steam will spread its comforting glow for all alike, where the occasional small stove or hot cannon ball did service in the past, and immense revolving fans will force fresh air into the most secret recess of the ship and make every nook and cranny purer than the actual living spaces of our ancient craft, whose between-deck quarters were so often foul with the noxious fumes of bilgewater and rotten wood, while the refulgence of hundreds of electric light will shed brightness everywhere, and be a substitute for the tallow dip so grudgingly besowed in former times.

Distillers, with a daily output of thousands of gallons, will give fresh, pure water where once the rusty tanks yielded a tainted, stinted portion. Splendid galleys will cook, in liberal bounty, the warm bread and wholesome food for the modern crew, and a refrigerating plant, with a daily cooling equivalent to a ton of ice, will preserve afresh the provender, and instead of the salt horse and hardtack of tradition the sailor of to-day can have his soft bread and shore grub when days distant at sea.—Washington Star.

OLD-TIME CANNON AND NEW.

Recent Marvel Development of Naval Armament.

Cannon were used for the first time in war probably at the siege of Quesnoy, France, in 1340. At the siege of Calais, in 1347, Edward III. of England is known to have used cannon, but how different these cannon were from the modern, high-powered gun of the present day may be appreciated when it is said that three or four ounces constituted the daily allowance of powder then and the supply of projectiles consisted of 204 lead shot and twelve small pieces of lead for a battery of twenty cannon! Toward the close of the fourteenth century cannon came into use at sea. At first only galleys were armed with them, but a little later sailing vessels were equipped with "bombards," cannon of small calibre, mounted on deck and firing stone shot over the rails. In the year 1359, in a sea fight, the Moors of Seville used cannon against the Moors of Tunis, and in 1387, for the first time, the English and French fought at sea with guns.

Early in the fifteenth century gun ports were invented, and soon the sides of ships began to bristle with cannon. From specimens which are still in existence we learn that these early cannon were either built up of wrought iron or cast in brass. They were not infrequently of immense size and length, and even in those crude times a breech-loading system was in vogue. And in those days cannon makers recognized the fact that the great strain came on the breech, for in a cannon of the reign of Henry VI. of England a bronze cylinder was inserted in the breech of a wrought iron gun to strengthen the chamber.

The cannon of Mahomet II., which were used in reducing the Byzantine city now known as Constantinople, were constructed in 1453, were of cast brass and hurled a stone projectile over 600 pounds in weight. The historian, Gibbon, is responsible for the statement that "by using the utmost expedition this great cannon could be loaded and fired no more than seven times a day." It would seem that these cannon which were used in the sicie of Constantinople were of about the same size as our modern 12-inch guns, though they did not, of course, possess anything like the accuracy, range or penetration. Yet even larger cannon than these, cannon firing stone balls of 1,100 pounds weight, are still to be seen by travellers on the coast of the Dardanelles.

The wrought iron cannon in Edinburgh Castle was used at the siege of Dumbarton Castle in 1489 and was fired as late as 1682. It has a calibre of twenty inches, yet fired a granite shot weighting only 330 pounds. Such a projectile in these days could be hurled easily by an 8-inch rifle. But we use 150 pounds of the very best powder to send such a missile on its mission of death, while the powder used in those old days was far inferior and the charge probably about one-tenth the weight of that employed to-day. The old warriors appreciated the fact that the greater the length of the gun the greater the penetration.

Some of the cannon exceeded in length the very latest guns of the present day. This fact is clearly demonstrated by a cannon which can still be seen at Dover Castle. It has a bore of 4 3-4 inches, fired a projectile weighing only twelve pounds, and yet was 53 calibres in length, thus far exceeding in length the Armstrong gun, much used in the British Navy, which is one of the longest guns afloat to-day in comparison to the size of the bore.

Iron shot came into use about the year 1450, although stone shot continued to be used for a long time after that. About 1550 cast iron came into use almost exclusively for guns, and they were made entirely of this material for 200 years, for it made the construction of guns more simple, rapid, and cheap. It is pretty certain that rifling, too, came into use about the middle of the sixteenth century, for at the Woolwich Arsenal in London may be seen a barrel on which is stamped the date of 1547. This barrel is rifled with six grooves which have a considerable twist, and is, moreover, fitted with a breech-loading mechanism. Thus it is seen that it has taken more than 200 years to develop the two principal ideas on which are based the two great features of modern ordnance—breech-loading and rifling.

In the seventeenth century no great progress seems to have been made in ordnance, although the number and weight of the guns carried by individual ships were increased. Since victory on sea as well as on land was gained by bringing to bear on the point attacked a sufficiently powerful force to crush the enemy at that point, the advantage of vessels with great individual artillery power soon became evident, and this power was sought by the greatest possible increase in the number of guns carried. In 1737 the first English three-decker, the Royal Sovereign, was built, carrying the tremendous battery of 120 guns. Early in the eighteenth century a method of boring guns instead of casting them solid came into use. This added very much to the efficiency of the gun. Still, solid spherical shot continued to be used, although the advantages to be gained by the use of elongated projectiles was pointed out by Robins, who, about the middle of the eighteenth century, published a treatise on gunnery. A century elapsed before the principles which he had laid down were put into practice.

Up to very recently the guns used by the chief naval powers of the world were smooth-bore and sightless. The records in shooting which American gunners made during the war of 1812 with Great Britain are remarkable when we consider the difficulties under which the gunners worked. Then the gun had to be hauled in and out by a dozen men with the aid of tackles. To train right or left it had to be hauled or worked around with ropes and iron bars, while to obtain elevation or depression of the muzzle wedges were withdrawn from or inserted under the breech. The slow match for firing had just been superseded by the flint lock, which was considered a great improvement, and was invented by Sir Charles Douglas in 1782. Sighting was done by what is called the "line of metal;" that is, running the eye along the exterior of the gun and making allowance for the inclination of this line to the axis of the bore, due to less thickness of metal at the muzzle than at the breech.

Fixed sights came into use about the beginning of this century. It seems strange that their advantages were not appreciated by the fighters of that time, but that they were not is amply proved by the opposition which this innovation met with. In 1801 a proposal to use sights on guns in the navy was sent to Lord Nelson. His opinion was unfavorable, as may be gathered from the following reply which he made to the Admiralty:

"As for the plan for pointing a gun truer than we do at present, if the person comes, I shall, of course, be glad to look at it, or be happy, if necessary, to use it, but I hope we shall be able, as usual, to get so close to our enemies that our shot cannot miss the object if we want them to."

Nelson wanted to be right up close to the enemy, where every shot could be made to tell. A three-mile range would have astounded him.

The claim to the distinction of having devised and introduced the shell system of projectiles is conceded by every one familiar with the subject to belong to Gen. Paixhans. The rifled guns were first used in service during the Crimean war on the allied ships of France and England. At first, of course, they were very crude in design and faulty in construction, but even with these drawbacks they showed so many points of superiority over the smooth-bore guns of equal weight that their development was rapid. In England the Lancaster gun came into use. It was made of cast iron and had an elliptical bore which was twisted so as to give a projectile of the same shape the necessary spin to keep it end on. A great deal was expected of these guns, but the projectiles frequently jammed in the bore, sometimes breaking up and sometimes even bursting the gun with fatal results, and they were abandoned after a long trial. The trial, however, was valuable in that it pointed the way to better things.

Sir Joseph Whitworth about this time invented his well-known gun with the hexagonal twisted bore. The Armstrong gun, however, was generally considered the best and was finally adopted by the British Government. It was built up of wrought iron tubes with wrought iron hoops shrunk over them. It was a breech-loading weapon, firing iron projectiles coated with lead. Between the years 1859 and 1863 more than 3,500 Armstrong guns of calibres ranging from 2 1-2 to 7 inches were manufactured, but the gun was defective in many ways, so that in a few years they were all abandoned and guns built up in the same way, but muzzle loading, were adopted in their place.

This was a retrogressive step which was not retraced till fifteen years after. Just about this time in our own country the smooth-bore shell gun attained such a development through the genius of Dahlgren and Rodman that the general use of rifled cannon was postponed for many years. For a long time the 9, 11 and 15 inch Dahlgrens were superior to any previous smooth-bores and equal even to contemporary rifled guns. Their superiority was due as much to a better distribution of the metal to withstand firing strains as to the superior quality of American cast iron. From the time of the civil war up to 1882 there were no improvements from smooth-bore gun to rifle in our naval armament.

The modern naval gun is a breech-loading weapon. It consists of an inner tube of the finest grade of forged steel, over which are shrunk reinforcing jackets and hoops of the same material. The breech is usually closed by means of a slotted screw system, by which a powerful screw thread on the breech block engages with a similar thread forged on the inner surface of the outer jacket covering the breech. The chamber, instead of being smaller in diameter than the rest of the bore, as it used to be, is now larger, so as to permit the employment of very large powder charges without unduly shortening the travel of the projectile before it leaves the muzzle of the gun, thus giving to it the advantage of every ounce of pressure which the combustion of the powder generates.

In guns of earlier makes the projectile left the muzzle before the gases impelling it had fully expanded, and thus, by too short a gun, much of the energy of the powder was wasted. The shortness of the bore in old ordnance was, however, to some extent compensated by the use of a quick burning powder, whereas that now employed is slow burning and takes much longer to develop its highest pressure.

The length of the modern gun is generally thirty calibres, sometimes a little more. The rifling consists of a large number of shallow grooves with a twist, increasing as they approach the muzzle. The rotation of the projectile, necessary to keep it point on while travelling through the air, is imparted to it by a copper band fastened round it near the base. This band is of a diameter slightly greater than the calibre, so that it is forced into the grooves as the projectile moves forward.

There are three kinds of projectiles. The common shell, made either of steel or cast iron, and containing a large bursting charge; the armor-piercing shell of forged steel, with a finely tempered point for penetrating armor and containing a quantity of very high explosive, such a jovite, and the shrapnel, containing a great number of small balls, with a bursting charge to spread them when the fuse acts. These projectiles weigh in pounds about one-half the cube of their diameter in inches. Compared with the solid shot of the smooth-bore, they are four times as heavy, and they are fitted with percussion fuses, exploding them on impact or with time fuses which can be set to explode them after a given period of flight. The powder charges are about one-half the weight of the projectiles and impart to them a velocity of 2,000 foot-seconds.

There are now coming into use in the United States Navy smokeless powder, with charges of which, weighing from one-fourth to one-third the projectile, muzzle velocities as high as 2,600 and 2,700 feet a second are obtained. But the erosion of chamber and rifling, due both to the chemical action of the gases which this new powder generates and to the enormous pressures developed by it, is so great as to raise a very reasonable doubt, not only of the superiority of the smokeless powder over that which is slow burning, but of its utility under most circumstances. This so-called smokeless powder has for its base a high explosive such as guncotton or nitro-glycerine, or a mixture of both, and the rapidity of its combustion is overcome by using it in a dense, non-fibrous form or by the addition of insert substances.

The calibres of the new rifles with which our ships are armed are 4, 5, 6, 8, 10, 12, and 13 inch. The processes of construction and the methods of assembling the various parts are the same for all these guns. The starting point in the manufacture of a big rifle is an immense vat of molten steel of the finest quality obtainable. While cooling, yet still in a malleable condition, the whole mass is put under powerful trip hammers which work and beat it to prevent any air being inclosed between the cooling particles, a possibility to be carefully guarded against, since the imprisoned air would prevent a thorough kneading of the steel and might develop weakness and render the tube less able to withstand the tremendous pressure which firing exerts upon it.

After this forging process the piece is rough-bored and turned down in huge lathes nearly to service dimensions, but enough metal is left on one or both ends to permit of taking off test specimens. This rough-bored and turned forging is then annealed and oil-tempered, and then the test ends are cut off and put to the trial. If these tests come up to the requirements in tensile strength, elastic limit, and elongation, the forging is accepted. This forging comprises the inner tube of the gun, which is rifled. Then jackets and hoops are forged in the same way. The jackets are made slightly smaller than the inner tube, but when raised to a white heat they expand sufficiently to permit of their being slipped on over the tube which they reinforce. In cooling these jackets shrink so that they bind and tremendously strengthen the tube. The assembled tube and jacket are then placed in a lathe and turned to the proper diameter for the hoops, which go on over all by the same process of shrinkage by heat.

The gun is then finish-bored, the chamber is bored out, and the exterior is finished off. Finally the gun is rifled, the breech mechanism is fitted, the gun is sighted, and after firing on the proving ground under the most severe tests, it is ready to be issued for service. The calculated elastic strength of the guns ranges from sixteen to twenty-five tons, although pressures as high as thirty tons to the square inch of chamber have been recorded at powder tests, without any enlargement of the weapon having been observed. For service use, however, the minimum pressure is thirteen and the maximum seventeen tons to the inch, and powder is made to obtain pressure within these extremes.

The 10, 12, and 13-inch rifles are only mounted on armored ships capable of great resistance to the heavy fire of an enemy, and then are always protected by turrets or barbettes. The 13-inch gun weighs about sixty-five tons. It fires a projectile weighing 1,100 pounds with a muzzle velocity of 2,100 foot-seconds, which is equivalent to the perforation, at the muzzle, of 26 1-2 inches of armor. The muzzle energy of the projectile, that is, the force given to it by the combustion of the powder as it leaves the muzzle, is 23,000 foot tons, or sufficient to lift a first-class battleship three feet. The 12-inch gun weighs nearly fifty tons and fires a projectile of 850 pounds with a charge of 460 pounds of brown prismatic powder. The 10-inch gun weighs only twenty-five tons and fires a projectile of 500 pounds with a charge of 250 pounds of powder. The range of these big rifles is about ten miles. A range of a mile is considered point blank.

The mounting for these heavy guns is the same for all three and is really very simple, when their tremendous weight is taken into consideration. To a saddle almost immediately beneath the trunnions the gun is secured by heavy steel straps. This saddle works on a slide supported by girders fixed to the turret floor. The forward part of this saddle is connected with a piston rod working in a steel cylinder. This cylinder is cut with shallow grooves of varying width, their sectional area decreasing to nothing at the rear end, and is filled with water or glycerine. When the gun is fired it forces the saddle back. This thrusts back the piston rod in the cylinder, and the water is forced through the shallow grooves, thus absorbing the recoil energy and stopping the gun after it has travelled back about four calibres. A pipe conveys water from below to the cylinders through an automatic valve which closes when the pressure in the recoil cylinder exceeds the working pressure in the hydraulic system.

Consequently, when the gun recoils the pressure of this system is exceeded by the pressure of the gun, and the valve closes. But when the recoil is checked, the gun pressure rapidly decreases, the valve connecting with the water system below opens, and water at a pressure of 600 pounds to the square inch is injected, forcing the gun back in battery. Two spring valves at the front end of the cylinder open during recoil to let out the water displaced from the rear to the front of the piston when the gun was fired.

For loading, the breech of the gun is depressed to a fixed loading position, a three-storied ammunition car carrying the shell in the upper compartment and half the charge in each of the others (for the charge is put up in two separate parts, being too heavy to handle in one) is hoisted in line with the breech by hydraulic power and the three parts of the ammunition are successively pushed home by means of a hydraulic rammer. For rotating the turrets steam or hydraulic power must be used, for the revolving weight, when a pair of heavy guns are mounted behind armor of reasonable thickness, is so great as practically to preclude the possibility of training by hand, except, perhaps, when the deck is perfectly level, and friction is thus reduced to a minimum. It is, therefore, regarded as indisputable that hand training gear is useless with turrets and with guns over eight inches in calibre. And it is not difficult to arrive at this conclusion when it is borne in mind that turrets like those carried by the Monterey weigh 180 tons, those of the Terror 280 tons, while the pair of 13-inch rifles with their turrets on the Indiana weigh 500 tons.

The 8-inch gun is the heaviest mounted on our unarmored ships, and it also forms the main battery of some of our battleships. It is 35 calibres long, weighs 12 tons, and with a charge of 150 pounds of powder fires a projectile weighing 250 pounds. The 6-inch gun is used for the main batteries of most of our cruisers and also supplements the 12 and 8-inch guns on such battleships as the Indiana, Massachusetts and Oregon. It weighs 5 tons and uses a charge of 50 pounds of powder to hurl a 100-pound projectile.

For rapid-fire guns the ammunition is in one piece and is called "fixed ammunition," in contradistinction to the ammunition for the larger guns, where powder and projectile are separate. For 5-inch rifles the weight of a cartridge, containing powder and shell, is about 95 pounds. The cartridge resembles on a large scale an ordinary revolver cartridge and is placed in the chamber by one man. When fired the gases act on the cartridge shell and do not, of course, corrode the chamber, thus rendering sponging unnecessary and thereby saving a great deal of time. By using fixed ammunition about five rounds a minute can be fired without much effort. The reason this quick-firing principle is not applied to larger guns is that a cartridge containing powder and shot in one piece for any rifle over five inches in calibre would be too heavy for one man to handle conveniently, and the employment of two men for loading, by interfering with the operations of other members of the gun crew, such as closing the breech, training, elevating and sighting, would prevent the rapidity of fire which it is the object of fixed ammunition to get.

The 5-inch gun weighs 7,000 pounds, the projectile weighs 60, and the powder 30 pounds. The 4-inch gun is also rapid firing. It weighs 3,400 pounds, fires a projectile of 33 pounds with 15 pounds of powder. Such is the tremendous rapidity of fire which can be obtained by the dexterous use of these guns that on the proving grounds the 5-inch fired five rounds in 24 seconds and the 4-inch five rounds in 17 seconds. This is a remarkable record, but a record under the most favoring conditions. Good service in action would be four or five rounds a minute. There is a 3-inch field gun which is in use, but it really comes under the head of an army gun, and may therefore be dismissed from discussion here.

Then come the machine guns, which play an important part in naval engagements. The calibre of the new machine guns is the same as that adopted for the new small arm—the Lee rifle, viz., .236 of an inch. The muzzle velocity obtained from these guns is over 2,500 foot-seconds, and their steel-covered bullets will place half an inch of mild steel or twenty inches of oak at moderate range.

While the weapons of modern ordnance have improved tremendously in recent years in range, accuracy of fire and penetration, yet the number carried by a modern battleship is very slightly less than the number carried by an old ship of the line. The necessity of carrying very heavy guns for piercing the armor of an enemy has resulted in placing but four of these guns on a ship. But the secondary battery must be taken into account, and it will be found that the usual battery of a first-class battleship has from 45 to 50 guns. Thus, the Indiana, the Massachusetts, and the Oregon each carry four 13-inch, eight 8-inch, four 6-inch, twenty 6-pounders, six 1-pounders, and four machine guns, or forty-six guns in all, throwing 6,000 pounds of metal at each discharge with a total muzzle energy of over 200,000 foot-tons, a force capable of lifting the battleship herself twenty feet in the air if applied in the right direction and to the best lifting instead of to the best destructive advantage.

Just what is the most advantageous armament for ships of different tonnage and varied protection to carry can only be told by the practical test of war.—New York Sun.

CAPE HENRY SIGNAL TOWER.

To Notify Fort Monroe of the Arrival of Vessels an Hour in Advance.

NORFOLK, VA., May 20.—The signal tower now being erected near Cape Henry on this coast will be, when completed, rather a novelty in structures intended for observation purposes. According to report, it is built at the suggestion of the Naval War College, and the site was selected by Commandore Cake, of the Virginia Naval Reserves. The tower it was said to-day by the contractor, H. G. Hayne, of Norfolk, would be completed within a week or thereabouts. The site selected is upon a bluff thirty feet high about a mile inside the Capes and facing Chesapeake Bay. It is about a quarter of a mile distant from the life-saving station at Cape Henry. Old Point Comfort and Fort Monroe, distant about twenty miles, cannot be seen from the ground level because of intervening trees, but they will be clearly visible from the top of the signal tower when this is finished. The tower is merely a high mast of pine, about which a framework will be built in ored to support it. These supports, which are twenty feet high, will be surmounted by a platform built around the central mast. Above this platform will be a top not unlike the fighting top upon a modern warship. The height of the mast from the top of which the signal flags will fly will be ninety feet. The first platform, reached by a ladder from the ground, will be 9x14 feet.

The tower will be manned by the Norfolk Naval Reserves, four of whom, under the command of Chief Quartermaster Cake, are now camped near the spot where the tower is being built.

I. D. McFarland, W. S. Hubbard, A. J. Buckwalter and C. E. Cullepher are the men who compose Quartermaster Cake's corps of observers. They are at present living in a tent 16x12 feet in size, but a new house of wood is being built for them and this will soon be ready for occupancy. It will not be a very big house, only 12by 20 feet, with ceiling 8 feet high, but it will be good enough, the boys say. They have been camped on the beach now for nearly a month. It was dreadfully lonesome, they said, at first, but they are getting accustomed to the life. They complain that they seldom or never see a newspaper. The station is connected with Fort Monroe and the Norfolk Navy Yard by telegraph and the reserves get their orders from Lieutenant W. H. Willard, of the Naval Reserves, who, from the navy yard, directs the signalling from all the stations along this immediate coast. The station is provided with a powerful telescope with which the signal corps spy upon passing ships, and a telephone line is now being run to connect it with the line running from Virginia Beach to Norfolk.

There are about fifty flags at the station and a number of colored and white lamps. The men know the merchant code of signals. The officers alone know the warship code. The main duty of the corps is to report to the navy yard the signals shown by passing ships, and their report is as once sent to Fort Monroe and the commader of the warships at Old Point.

From the station signals will be exchanged with every passing ship, and, when the tower is finished, with Fort Monroe. It will be the duty of the corps to report every ship passing up Chesapeake Bay, and Colonel Frank, commandent of Fort Monroe; Lieutenant Willard at the navy yard, and the commander of the fleet 1 Hampton Roads will be advised fully an hour in advance of the arrival at Fort Monroe of any vessel, so that they may prepare a warm reception for it if it should be the vessel of an enemy.

The reserves undertaking this night and day watch are not overpaid. They receive thirty cents a day from the Government and out of this have to pay for their food and clothes. But bluefish are cheap, while cabbages abound on the coast, and so far, the boys say, they have been able to make both ends meet by pulling hard.—New York Sun.

BEFORE A WAR BULLETIN.

The Unkind Comment of a Near-Sighted Man on Current News.

A near-sighted man stood in front of one of the most offensive war bulletins, the other day, with a friend who read him the news—or what was dished out as news.

"Where's all that hammering," he asked suddenly, and his friend replied:

"It's on the bulletin board."

"Oh," said the myopic person. "They're nailing lies, I suppose." Then he went away satisfied.—N. Y. Sun.